

WHAT IS CLAIMED IS:

SUB
29

1. A fiber composite structure having laminate layers, with a piezoelectric actuator or sensor integrated therein, wherein:

electric feed lines for the actuator or sensor comprise electrically insulated thin wires;

said wires exit the fiber composite perpendicularly to the laminate layers, whereby fibers of the fiber composite structure are not severed by exiting of the feed lines, but are rather pushed apart.

2. The fiber composite according to Claim 1, wherein the feed lines have a diameter of less than 1 mm.

3. The fiber composite according to Claim 2, wherein the feed lines have a diameter of less than 0.5 mm.

4. The fiber composite according to Claim 1, wherein the feed lines are guided within the fiber composite in sections parallel to the laminate layers.

5. The fiber composite according to Claim 2, wherein the feed lines are guided within the fiber composite in sections parallel to the laminate layers.

6. The fiber composite according to Claim 1, wherein the wires are fastened on the actuator or sensor by one of a conductive adhesive and a solder.

7. The fiber composite according to Claim 1, wherein insulation of contact points between the actuator or sensor and the electric feed lines is provided by one of an epoxy resin, an insulating varnish and an insulating polyimide foil.

8. The fiber composite according to Claim 1, wherein recesses for the actuator or sensor are provided in the laminate layers.

9. The fiber composite according to Claim 1, wherein the actuator or sensor is integrated between two successive laminate layers without recesses.

10. A process for producing a fiber composite with an actuator or sensor integrated therein, according to Claim 1, by means of a prepreg or wet-laminating technique and a subsequent baking at a raised temperature and an increased pressure.

11. A process for producing a fiber composite with an actuator or sensor integrated therein according to Claim 1, comprising:

preparing a prepreg or wet-laminar component;

baking the prepreg or wet-laminar component at a raised temperature;

tempering the prepreg or wet-laminar component at a raised temperature and an increased pressure.

12. The process according to Claim 10, wherein:

openings are present in the pressure pieces for the pressure treatment of the fiber composite, which openings are used for the guiding-through of feed lines for the actuator or sensor; and

the openings are arranged at the points at which the feed lines for the actuator or sensor emerge from the fiber composite.

13. The process according to Claim 12, wherein the openings in the pressure pieces are countersunk or beveled on the laminate side.

SUB
12

14. The process according to Claim 12, wherein:

the openings are sealed off by means of a sealing tape;
and

because of a pressure difference during the baking cycle, a portion of the sealing tape is pressed into a gap between the feed line and the pressure piece.

15. The process according to Claim 12, wherein pressure pieces are used which have a reduced stiffness relative to the known pressure pieces; and

a thickness of pressure pieces is less than 5 mm.

16. The process according to Claim 15, wherein the thickness of the pressure pieces is 2 mm.

17. The process according to Claim 12, wherein in an area of the actuator or sensor, the pressure piece has a shallow recess, in a range of from 0.1 to 0.2 mm to prevent a pressing-out of the matrix because of the thickening in this area.